

## Environmental Spread of Infectious Agents and Interruption by Microbicides

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“Over the past 30 to 40 years the subject of environmental spread of infectious agents and regular sampling of the environment for infection control - particularly in places such as hospitals - was downplayed by influential agencies such as the U.S. Centers for Disease Control and Prevention. With the advent of antibiotics and vaccines it was no longer considered an activity that would give a good return for the effort. We now know that that was a hasty decision and things have changed for the worse over the years. As a result, we are being forced to re-visit the role of the environment in the transmission of infectious diseases.”

*Excerpted from a lecture given by Dr. Syed A. Sattar of the University of Ottawa, Faculty of Medicine, in the Virox Speakers Series - Toronto, November 30, 2004. Copies of the handout notes from this lecture can be obtained by contacting Nicole Kenny, nkenny@virox.com.*

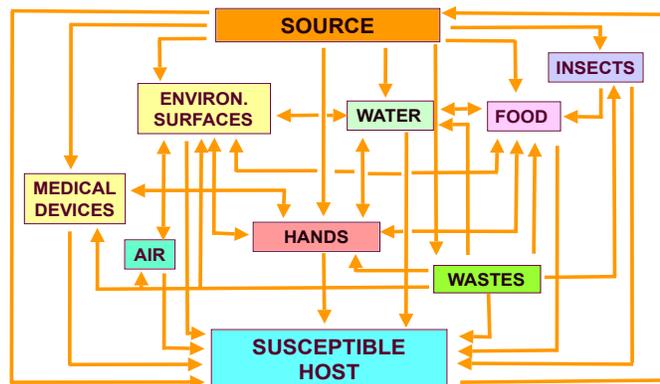
A careful look at the way infections spread shows that everything is connected to everything else, resulting in an intricate network which is often difficult to navigate through. This is very much a reality for our healthcare settings. For example, hand hygiene is very important but emphasis on it alone can be counterproductive without due regard to effective decontamination of medical devices and protecting the quality of the environment by disinfecting crucial, critical environmental surfaces properly. One must consider these issues in order to develop a more holistic approach to environmental control to reduce the spread of pathogens.”

“So, what is the role of microbicides in all this? A pathogen or nuisance organism enters the environment and contaminates it. The longer the contaminant survives in the environment the higher is the risk of its spread to susceptible hosts

in the vicinity. Cleaning, disinfection, and sterilization can effectively reduce this risk by interrupting the spread of such pathogens. But the decontamination must be performed properly and in a timely manner using the right kind of technology and products.”

“Some 300 chemicals are used as microbicides, and many of them are under review because of safety issues. While microbicides are a double-edged sword – and you cannot have a chemical that effectively kills pathogens but and be completely safe to humans - the

trick is to balance the issues of human and environmental safety, materials compatibility, and field application. In particular, I would like to sensitize you to the issue of environmental safety. Every day there are reports of how microbicides are being found in groundwater, in mothers’ milk, etc. Is this safe? Are we getting the benefit we desire from microbicides we currently use while not causing long-term damage to the environment? I submit that there is cause for concern and a need to develop and introduce safer and better microbicides.”



*“The secret of success is constancy of purpose”*

Benjamin Disraeli



## Tribute to a Friend Dr. A. Denver Russell

On October 13, Allan Denver Russell, FRPharmS, of the Welsh School of Pharmacy in Cardiff, Wales passed away suddenly and unexpectedly. Professor Russell's career was long and extremely productive. He was awarded a DSc of the University of Wales in 1975 and made a fellow of the Royal College of Pathologists in 1982. In 1999 he was elected a fellow of the American Academy of Microbiology. Professor Russell retired from his full-time post in the School of Pharmacy in 2001, but remained a part-time research professor in the school. The passing of Dr. Russell is a great loss to many including many of us at Virox Technologies who were honored to call him a friend. We extend our condolences to wife Margaret and son David on the passing of their dear husband and father.

**Professor Stephen Denyer, Head of School, Welsh School of Pharmacy writes.....** Denver devoted almost his entire career to the school, being responsible over a 40-year period for the development of teaching and research in pharmaceutical microbiology. During this time, some 45 of his research students obtained PhDs, he produced over 450 publications on microbial inactivation, and was author or editor of 16 books including the standard undergraduate text 'Pharmaceutical microbiology' with W .B. Hugo.

Denver was a leading world authority on biocide usage and its possible association with antibiotic resistance. His Fellowship of the Royal Pharmaceutical Society in 1981 was awarded for distinction in the science of pharmacy and his published achievements resulted in Fellowships of the Royal College of Pathologists in 1982 and of the Ameri-

can Academy of Microbiology in 1999. This latter was a rare accolade for a UK scientist.

Denver was extremely hardworking and dedicated to his subject, maintaining a research position at the school long after his official retirement. He was always delighted to pass on his enthusiasm to others and was inspirational to his junior microbiology colleagues.

**Paul Spencer, Professor Emeritus of Pharmacy and Pharmacology, Welsh School of Pharmacy, Cardiff, writes.....** Denver was a steadfast and supportive colleague throughout my years at the Welsh School of Pharmacy. The school's resources were severely pinched during the 1980s, not least in microbiology, but Denver (and his close colleague Jim Furr) battled to maintain and develop their research platform and yet provide teaching for a considerable student load.

It is quite clear that Denver was a research scientist of considerable international stature, as his several hundred publications, reviews and textbooks testify. He was also a superb teacher, with the Hugo and Russell textbook running into many editions spread over a 30-year period — a standard text in every UK school of pharmacy and many overseas.

International lectures and everyday undergraduate lectures were prepared equally meticulously and delivered with great skill and enthusiasm — Denver always featured at the top in any student assessment of favourite teachers.

Denver was always direct and transparent with his colleagues. He thought deeply about school developments before he supported them, or otherwise — the very best of senior staff to work with. He made a considerable contribution to everything the Welsh school has come to be known for and it is sad but perhaps fitting that he died while still active in microbiology, notwithstanding his formal retirement some two years ago.

I have lost a former colleague I also considered a friend and confidant, quite irreplaceable. Academic pharmacy is much the poorer today.

**Dr. Syed Sattar, Director of the Centre for Research on Environmental Microbiology at the University of Ottawa writes.....** I am extremely fortunate to have known Prof. Denver Russell. The news of his untimely demise came as a true shock. He was not only a world-renowned researcher but also a very decent human being. He was indeed a prototypical 'gentleman-scholar'. His contributions to research on antimicrobials are legendary. His ethical standards as a scientific investigator were high; he was an inspiring teacher, a much sought-after speaker, a caring and considerate leader and a mentor par excellence. His self-effacing personality and wry sense of humor rapidly endeared him to those fortunate enough to get to know him. I once informed him that there was a mistake in my name in the list of authors in his book and that my initials became ASS instead of SAS. Without batting an eye, he said "May be we did it on purpose!"

While his passing away is an immense loss to all, it is particularly devastating to those who regularly relied on his research acumen and professional advice and leadership. I wish to reiterate here my deep sense of sadness to his wife Margaret and others in the family. I have many fond memories of my visit to Cardiff, Wales, where Denver and Margaret were our gracious hosts and expert guides.

May his noble soul rest in eternal peace.

*We can usually see only a small percentage of what is possible. Imagination is having the vision to see what is just below the surface.*

**- Denver Russell**

## Virox Update

### 2005 Virox Speakers Series

The success of the July and November 2004 Speakers Series has fortified our commitment to support and provide education opportunities for Infection Control professionals in Canada. Virox feels strongly that educational updates are essential to keep Infection Control programs current. We are extremely excited to be able to support three (3) Seminars during 2005 (March/April, July & November). Dr Michael Gardam, Director of Infection Prevention and Control at University Health Network will present in March/April, date to be confirmed. The speakers for the July seminar has yet to be confirmed. Dr. Dick Zoutman, Medical Director Infection Control Service at Kingston General Hospital will be speaking at the November 29th seminar. The seminars will be held at the Hilton Garden Inn in Oakville in order to provide seating capacity for as many people as possible. To ensure you are included in the notification email for these events please contact Nicole Kenny at 1-800-387-7578 x118 or by email at [nkenny@virox.com](mailto:nkenny@virox.com).

### Website Update: [www.virox.com](http://www.virox.com)

NEW MEMBER SECTION TO LAUNCH FEB 15/05! Do you want to be sure you get all the updates on Virox? Interested in being included on all of the invitations to all Virox's FREE education seminars? On February 15, 2005 we will be launching a members section. Log on to [www.virox.com](http://www.virox.com) and click the member's icon to sign up!

We are pleased to announce that the link LINKS page of the website has been entirely revamped. The LINKS page now includes the following sections:

- Antimicrobial Resistance Sites
- Bioterrorism Resources
- Canada & United States Registered Disinfectant Listing
- Educational / Professional Sites
- Government Agencies
- Hospitals & Other Healthcare Facilities
- Infection Control Sites
- Journals
- Microbiology / Infectious Diseases Sites

- Public Health
- Training Resource Tools

Virox prides itself on being a resource tool to the infection control community so please check out our website frequently as new links will be posted regularly.

### Consumer Product Launched!

AHP is now available to the public! Virox, in partnership with MF Distributions Inc has launched a new product based on our patented AHP technology. The new product for use in homes is called Orange Glo Disinfection Control and can be found in Wal-Mart stores across Canada.

### Conference & Education Winter/Spring Schedule

#### Virox is honoured to be participating in the following functions:

**January 18 & 19** – Infection Control: Building Effective Control & Surveillance Systems Across the Continuum of Care in Toronto

**February 21** – Food Safety Forum in Toronto

**March 14 – 17** – Seatrade Cruise Shipping Convention in Miami Beach Florida

**April 9 – 12** – The Society for Healthcare Epidemiology of America (SHEA) in Los Angeles

**April 10 & 11** – Allied Beauty Association in Toronto

**April 10 – 12** – Ontario Long Term Care Association Conference (OLTCA) in Toronto

**April 15** – ElderHealth Foot Care in Ottawa

**April 21 to 24** – Association of Medical Microbiology & Infectious Disease (AMMI) in Ottawa

**April 22 & 23** – NEFCA in Barrie

**May 4 & 5** – Canadian Sanitation Supply Association (CSSA) in Toronto

**May 5 – 7** – Ontario Dental Association (ODA) in Toronto

**May 7 – 11** – CHICA Annual Conference in Winnipeg



## Virox Speaker Series Features Dr. Syed Sattar

Dr. Syed Sattar has been WOWing audiences at scientific meetings for many years, and his reputation is vast and well earned. It was undoubtedly a result of this reputation that the huge meeting room at the Hilton Garden Inn in Oakville was packed to standing room only on November 30. As part of the ongoing Virox Speaker Series, Dr. Sattar was invited to give the lecture "Environmental Spread of Infectious Agents and its Interruption by Microbicides". He did not disappoint.

I just wanted to thank you for bringing Dr. Sattar in to speak today. He is a fabulous speaker, so knowledgeable, so credible with such integrity. It speaks very highly of your own company to be so closely associated with him. I really appreciated you going to such efforts to make this knowledge available to us.

Most sincerely;

Margie Foster RN, CIC  
Director Infection Prevention and Control  
Grand River Hospital

## Toxicity – Reality Check

Russell Johnson  
Maunco Medical, russell@maunco.com

The question of toxicity often comes up in my daily work life, typically in reference to liquid disinfectants, and the simplicity of the question should merit an uncomplicated answer. Unfortunately nothing about toxicity is uncomplicated. Use of the term “toxic” is tremendously broad and not often understood. And although much can be written on this subject (Andre Craan’s newly published textbook on toxicology is nearly 1,000 pages), the three primary points upon which I would like to briefly focus are: (1) the subjective nature of the word “toxic”, (2) the universality of toxicity, and therefore (3) the deception of the term “non-toxic”.

The concept of toxicity does have a scientific definition and objective measurements, although the word “toxic” is frequently applied in a random and entirely subjective way, often by people who don’t actually understand it. Many therapeutic antimicrobials and skin/surface disinfectants are described as possessing toxicity (hepatic, bone marrow, central nervous system, dermal, renal). This doesn’t describe the actual damage reaped by the chemicals, just that they are potentially damaging. Although it is a common term, the specificity of it is often lost among vague generalities.

From time to time we have all spoken of “highly toxic”, or “non-toxic”. In truth of fact, everything is toxic - pharmacology and toxicology are two sides of the same coin – and nothing is truly non-toxic (i.e. causes no harm). It’s really a question of

concentration and volume. In an MSDS toxicity will often appear as “LD50”, meaning lethal dose, the volume required to kill 50% of the test animals, (usually rats) or “LC50”, meaning the lethal concentration. The lower the number indicates an increasing risk to rats and a presumed increase in risk to humans. For example, the oral LD50 for water is 13,000mg per kg of body weight. For me to commit suicide-by-water I would have to drink thirteen times my body weight (although Montreal tap water would likely do me in well before that). On the other hand, many quaternary ammonium chlorides have an LD50 of less than 500, and glutaraldehyde of close to 100 – much more dangerous.

So what then shall we say to those who demand, or to those who purport to sell, entirely non-toxic products? Being the polite professionals that we are, we would probably just say to those who are searching for a toxin-free nirvana, “Good luck”. To those who would have us buy their drug, disinfectant, or hand soap based upon “non-toxic” claims, we must say, “Prove it”. Generally these sales people will indicate that it is “considered sub-toxic at the in-use concentrations”, which is probably true and a perfectly acceptable answer. But don’t kid yourself, everything is toxic, and they need to be up front about that. The key is to manage your exposure, and your patients’ exposure to potentially harmful agents by choosing wisely based upon science, and not upon anyone’s random definition of “toxic”.



## Webber Training Teleclass Schedule

[www.webbertraining.com](http://www.webbertraining.com)

### January

- 20 – Managing Urinary Tract Infections
- 27 – Community Issues Concerning Antibiotic Practices

### February

- 10 – Surgical Site Infections, Surveillance and Management
- 15 – Endemic influenza, Pandemic Influenza, Avian Flu a WHO Overview
- 17 – Sad Cows and Englishmen, Predicaments and Predictions for Spongiform Encephalopathies
- 24 – Sneezes, Coughs, and Drips: Respiratory and GI Outbreaks in Long Term Care Facilities

### March

- 10 – Biocide Use in a Healthcare Environment
- 17 – WHO’s Global Patient Safety Challenge 2005/2006 Preventing Healthcare Associated Infection; A Worldwide Strategy
- 24 – Infection Control in Pre-Hospital Care
- 31 – Voices of CHICA, Part 1

### April

- 7 – Root Cause Analysis for the Infection Control Professional
- 14 – Disinfectants and Environmental Impact
- 19 – Methods for Testing Hand Disinfectants
- 21 – Creutzfeldt-Jakob Disease: Recommendations for Disinfection and Sterilization
- 28 – Overcoming the Resistance of Biofilms

### May

- 19 – Antiseptic Practice and Procedure
- 26 – Canadian Response to West Nile Virus

**Virox is committed to infection control education and we are pleased to provide ongoing support to Webber Training and Teleclass Education.**

## IFIC Congress 2004 Review

Nicole Kenny, Virox Technologies

In October 2004, approximately 600 people attended the 5th Congress of the International Federation of Infection Control, in the spectacularly beautiful Porec, Croatia. Through the precious few days that the conference ran, several keynote lectures were presented to rave reviews.

Patricia Lynch, IFIC President, spoke about the relation of infectious and non-infectious complications in hospitalized patients. She cited a large study of 1,618 randomly selected medical records that were reviewed for infectious complications and non-infectious complications. "Non-infectious complications" included lacerations, reactions to medication, atelectasis, pneumothorax and hemorrhage. The study found that patients with infectious complications were 4.6 times more likely to have a non-infectious complication. Infectious complications and non-infectious complications increased with age, neonatal prematurity, and in surgical patients.

Nizam Damani of Northern Ireland (native of Pakistan) addressed the topic of infection control in countries with limited resources. The audience learned that where the hospital-associated infection rate in developed nations averages close to 10%, those countries with limited resources experience as much as a 25% infection rate - a major cause of morbidity and mortality, and certainly of increased expense. Many countries lack the resources, educational materials, trained personnel and strategic planning to have any impact. However, anecdotal evidence was given of small improvements in infection control training and practice reaping large rewards in lives saved and improved.

One of the more entertaining and "heated" symposia through the congress was provided by Dr's William Rutala (US) and Franz Daschner (Germany). The two combatants had opposing views on the necessity of routine disinfection of environmental surfaces in hospital environments. Dr. Rutala first reviewed 6 reasons for using a disinfectant agent on non-critical environmental surfaces:

1) surfaces may contribute to the transmission of epidemiologically significant pathogens, 2) OSHA requires that surfaces contaminated with blood and other fluids be disinfected, 3) detergent solutions become contaminated and contribute to pathogen spread, 4) hospital floors become contaminated by the settling of airborne organisms, 5) the CDC Isolation Guideline recommends that disinfection of bedside equipment and environments is indicated for certain pathogens, and 6) use of a single product through the facility would simplify training and enhance appropriate practice. On the other hand, Dr. Daschner pointed out that there was no difference in contamination on a hospital floor when it was cleaned with a disinfectant compared to a detergent. Further, infections related directly to contaminated environmental surfaces (rather than unwashed hands) are rare, and that disinfectants harm the environment, harm hospital personnel, and harm sensitive bacteria in the sewage treatment system. He also pointed out that the resistance of certain bacteria to agents such as benzalkonium chloride is increasing, and concluded by stating that use of quaternary ammonium compounds, phenolics, sodium hypochlorites and biguanides should be avoided. Both men quoted liberally from each

other's published data to make their point in what became a very entertaining face-off.

Some very eloquent and interesting lectures were offered by other notable faculty (including CHICA-Canada's Physician Director, Dr Dick Zoutman), however oral presentations from delegates were equally riveting, although unfortunately for just 10 minutes at a time. Maryam Salaripour, ICP at St. Michael's Hospital in Toronto gave an oral presentation entitled "Patient Safety and Staff Satisfaction; Developing Hospital-Wide Infection Prevention & Control Certification Program". This particular presentation was so well assembled and delivered that Maryam was presented the IFIC Sponsorship Award during the



awards ceremony on the last evening of the conference.

In October 2006 the 6th Congress of the International Federation of Infection Control will be held in Istanbul, Turkey. Readers are encouraged to attend, or at least financially support the attendance of those from developing nations through contributions to the IFIC Scholarship Fund. The Scholarship Fund makes it possible for dozens of participants to attend thereby influencing the healthcare and welfare of millions of people worldwide.

Conference information and information on the IFIC Scholarship Fund are available on-line at [www.ific-narod.ru](http://www.ific-narod.ru).





Dear Colleagues:

It was a pleasure to speak with so many of you recently and hear your support for those in the tsunami affected areas. Some of you have already pledged funds both for the immediate relief effort and the long term goals that IFIC has set out for itself in educating infection control persons in the devastated areas. The IFIC board is extremely grateful for this support.

I would like to outline some of my thoughts on how we should proceed. There is at the moment a large outpouring of grief, compassion and empathy for those affected by this tragedy. However, there are also long term implications; implications such as rebuilding and restoration of infrastructure including education. This is where I believe we should be drawing on the real strengths and abilities of CHICA-Canada and our sister organisations such as APIC, ICNA and other infection control societies in the developed world where we are rich in human and material resources. The rebuilding process will take a long time and the after effects will be felt for many years. Therefore this is how I believe we should direct our efforts.

As you will know from the two letters with attachments that were sent out recently from the CHICA-Canada office, one of the aims of IFIC is to raise

money for the IFIC Scholarship Fund in order to bring persons from the disaster areas to IFIC's annual conference which will be held this year in Istanbul, Turkey in October. IFIC has created this fund, which is separate and discrete from all other funds. It is not to be used for any other purpose. Last year in Porec, Croatia IFIC was able to fully or partially fund 11 people from areas with scant resources to attend the conference and the year before in Malta to bring eight people from such areas. Further, in donating to causes such as this or other legitimate charities we can be assured that the funds will not be diverted for the benefit of unscrupulous individuals.

I ask you to please share this urgent plea with your chapter members. Funds are acceptable in the form of either a cheque, money order or bank draft. Please also include your e-mail address. Contributions can be made by societies, their chapters, individuals and corporations and may be sent to the Honorary Treasurer at this address:

Dr. Nizam Damani,  
Clinical Director & Consultant Clinical Microbiologist,  
Craigavon Area Hospital,  
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Thank you again to those of you who have already donated so generously and spontaneously. It is so appreciated.

I appreciate your consideration of this letter.

Yours sincerely,

*Moira Walker*

Moira Walker RN CIC  
Chair, IFIC Scholarship Fund



**May 7 -11, 2005**

**CONFERENCE REGISTRATION**  
**Early Bird Registration:**  
**April 15, 2005**

[www.chica.org](http://www.chica.org)



**June 19-23, 2005**

[www.apic.org](http://www.apic.org)

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